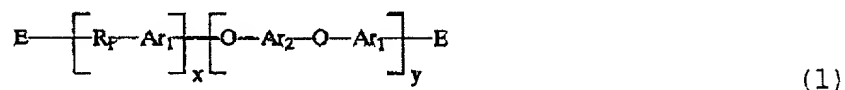
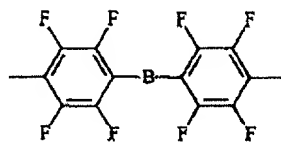


**What is claimed is:**

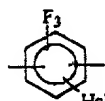
1. Fluorinated polyethers having a fluorinated aliphatic group at a main chain, which are represented by the following formula (1):



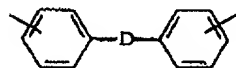
where  $R_F$  represents  $OCH_2(CF_2)_nCH_2O$ , or  $OCH_2CF_2O(CF_2CF_2O)_nCF_2CH_2O$ , where  $n$  is a natural number ranging from 1 to 12;



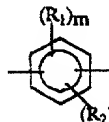
$Ar_1$  represents the above structure, where  $B$  is not present or a  $C=O$  group, or



$Ar_1$  represents the above structure, where  $Hal$  is one selected from  $F$ ,  $Cl$ ,  $Br$  and  $I$ ;

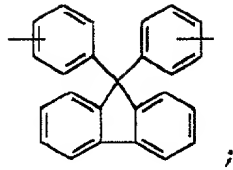


$Ar_2$  represents the above structure, where  $D$  is one selected from  $-C(CF_3)_2$ ,  $-C(CH_3)_2$ ,  $-CO-$ ,  $-SO_2-$ ,  $-O-$  and  $-S-$ , or

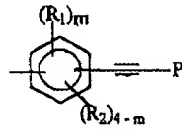


$Ar_2$  represents the above structure, where  $R_1$  and  $R_2$  are the same or different and each independently represents a halogen atom selected from  $F$ ,  $Cl$ ,  $Br$  and  $I$ , and  $m$  is a natural number of 1-3, or

Ar<sub>2</sub> represents



E represents H, or



, where P is H or a substituted or unsubstituted phenyl group;

x is a number ranging from 0.1 to 1.0;

y is 1.0-x.

2. The fluorinated polyethers of Claim 1, which has no an ethynyl group at an end.

3. The fluorinated polyethers of Claim 1, which has a thermosettable ethynylphenol or phenylethynylphenol group at an end.

4. The fluorinated polyethers of Claim 1, in which R<sub>F</sub> is a perfluoroalkyl group, and Ar<sub>1</sub> is a decafluorobiphenyl group.

5. The fluorinated polyethers of Claim 1, in which R<sub>F</sub> is a perfluoroethylene oxide group, and Ar<sub>1</sub> is a decafluorobiphenyl group.

6. A waveguide type optical devices comprising a lower cladding layer formed on a flat substrate, a core layer formed on the lower cladding layer, and an upper cladding layer formed on the core layer, wherein the core and/or cladding layers are formed of the fluorinated polyether derivatives of Claim 1.